

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,164	02/22/2002	Charles Abraham	GLBL/020	8383

7590 01/06/2004

Moser, Patterson & Sheridan, LLP
Attorneys at Law
Suite 100
595 Shrewsbury Avenue
Shrewsbury, NJ 07702

EXAMINER

ISSING, GREGORY C

ART UNIT	PAPER NUMBER
----------	--------------

3662

DATE MAILED: 01/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/081,164	ABRAHAM ET AL.	
	Examiner	Art Unit	
	Gregory C. Issing	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6,7,9,18,19,21-33,42,43 and 45-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,6,7,9,18,19,21-33,42,43 and 45-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

1. The Amendment filed 11/21/03 has been entered. The Finality of the last Office Action is withdrawn. A new Final Rejection is formulated below.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 6, 7, 9, 18, 19, 21-25, 31-33, 42, 43, and 45-47 are rejected under 35 U.S.C. 102(b) as being anticipated by Russell et al in view of ICD-GPS-200.

Russell et al disclose the control segment of the Global Positioning System including a GPS satellite that receives ephemeris data from a Master Control Station (MCS) via an Upload Station (ULS) at least once a day and subsequently transmits the satellite ephemeris data to a remote GPS user receiver. As specified on page 77, the uploads consist of 6-hour and 26-hour uploads, including ephemeris, clock model parameters, and almanac data. The ICD-GPS-200 is a controlling document that defines and characterizes the GPS signal information. The information therein is inherent in a Global Positioning System. The information pertinent to the instant application lies in the definitions of “ephemeris parameters” and “almanac parameters” wherein it is shown that the almanac data is merely a reduced-precision subset of the ephemeris data [20.3.3.5.1.2] - thus, the almanac data is by definition a portion of the ephemeris data (also see a comparison of Table 20-III and Table 20-VI). Additionally, it is known that the ephemeris data is provided with a “fit interval flag” in bit 17 in word 10 of subframe 2 to indicate whether the ephemeris are based on a four-hour fit interval or a fit interval greater than four hours, see page 95 and 97 of the ICD-GPS-200, e.g. Thus, it is known that ephemeris data may be provided

Art Unit: 3662

that is valid for at least four hours. Further, it is known that almanac data is provided from the master control station to the satellite that subsequently provides the almanac data to remote GPS user wherein the almanac data is valid for substantially longer than four hours and is by definition “at least a portion of the ephemeris data.”

Russell et al are therefore deemed to disclose a method for distributing satellite tracking data, both ephemeris and almanac data, to a remote GPS user (the User Segment) via a GPS satellite (Space Segment) which receives the ephemeris and almanac data from a Master Control Station upload (Control Segment) and wherein the GPS satellite transmits the ephemeris and almanac data to the remote GPS users. The navigation message sent by the satellite includes an ephemeris message, an almanac message and a fit interval flag; the ephemeris message may include data that is valid for four hours or more than four hours on the basis of the fit interval flag while the almanac message, which is merely a reduced-precision subset of the ephemeris data, is known to be valid for greater than four hours.

4. The applicants’ arguments that the prior art fails to disclose “receiving ephemeris data from a satellite control station and transmitting at least a portion of said ephemeris to a remote receiver . . . data being valid for at least four hours” is not persuasive since it is well known that the GPS satellite receives the ephemeris data from a master control station and broadcasts it

during its transmissions to remote user GPS receivers. The ephemeris data is shown to include 6-hour and 26-hour data. Moreover, almanac data is additionally transmitted; it is well-known, according to the ICD-GPS-200, that almanac data is a subset of the ephemeris data and is valid for much longer than four hours. Lastly, there is nothing in the specification that provides any metes and bounds for the terminology “valid” and what would make or not make data valid or

Art Unit: 3662

not valid. In a previous response, the applicants argued that Russell et al differed from the claimed subject matter since the claimed transmission of the data was via a terrestrial communication link. As this feature is no longer claimed and since the support for such statement was previously questioned, Russell et al is re-instated as prior art applicable to the claims.

✕

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 6, 7, 9, 18, 19, 21-25, 29-33, 42, 43, and 45 -47 are rejected under 35 U.S.C. 103(a) as being unpatentable over King et al in view of Taylor et al.

The rejection is set forth previously in a prior Office Action and includes the following: it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify King et al by substituting a Master Control Station as the remote source of ephemeris data in view of the teachings of Taylor et al who show the Master Control Station, which is known to define and calculate the trajectory information provided to each of the GPS satellites, as providing the ephemeris data to a control station for subsequent transmission to users, albeit in a different format; and, (2) it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify King et al by selecting an interval of time such that a desired accuracy would be achieved, computational loads would be decreased and power would be reduced. Since the ephemeris data provided to the base station, via a Master

Satellite Control Station, may be a 6-hour or 26-hour upload, the base station has information sufficient to calculate trajectory information for up to 26 hours. A selected interval of time that would achieve a balance of desired accuracy, reduced computational load and reduced power consumption is clearly a design choice to the skilled artisan; an interval of time of at least four hours is clearly within the scope thereof.

Applicants argue that the combination fails to teach “receiving ephemeris data from a satellite control station and transmitting at least a portion of said ephemeris to a remote receiver . . . data being valid for at least four hours” since King et al are devoid of any satellite control station and since King et al do not transmit ephemeris data that is valid for at least four hours; Applicants argue that King et al specify reception from a satellite either locally or remotely and that the curve fit data is only valid for five minutes as opposed to at least four hours. Applicants also argue that Taylor et al do not teach transmitting ephemeris data that is valid for at least four hours since Taylor et al teach transmitting instantaneous satellite coordinates to a user. Applicants also argue that each of King and Taylor et al teach away from the claimed subject matter.

8. Firstly, King et al clearly indicate the advantages of providing the ephemeris data to a mobile user via a communication link from a base station so that the user receiver does not

require demodulation of the navigation message and therefore reduces power consumption of the portable device. Additionally, the base station receives the ephemeris data either directly from the satellites or the information could be transmitted to the base station (col. 4, lines 18-26).

King et al do not specify that transmission to the base station is via a satellite control station.

However, the important teaching to be gleaned from King et al is that a base station receives

satellite ephemeris data and formats the data into curve fit data for transmission, via any of a wide variety of known or future communication system, to a remote GPS receiver so that the remote GPS receiver acquires the GPS signals and determines the requisite information in a shorter period of time and at a decreased computational load, thus reducing power consumption of the portable device. Providing the base station with the information from a remote source does not negate nor teach away from the use of a satellite control station as alleged by the applicants. That the information could be received at the mobile switching center is merely one of an exemplified alternative embodiment (col. 4). Although the curve fit data is preferred to be updated and transmitted every five minutes, other time intervals may be suitably selected (col. 4, line 37). The equation defining the motion of the satellites is set forth in col. 8, line 51; this equation is clearly a function of the time and models a continuously varying function. The accuracy is clearly dependent upon the error introduced by the order of the truncation. That King et al select a second order curve fit is merely a preferred embodiment, but it still remains that such selection is based on an infinite order polynomial that is known to model any continuously varying function. Thus, while King et al do not specify the reception of ephemeris data from "a satellite control station" nor the transmission of at least a portion of the ephemeris data that is valid "for at least four hours," King et al do teach the reception of ephemeris data

from a remote source as well as transmitting at least a portion of the ephemeris data that is valid for a selected interval of time. Taylor et al show that it is well-known in the art that the Master Control Station (18) is a source of satellite ephemeris and almanac data describing the trajectory and positions of satellites and has the capability of providing the satellite data to a base station (12) which subsequently provides the a portion of the ephemeris data to mobile GPS users (14).

The information provided by the Master Control Station is clearly valid for at least four hours.

How the base station of Taylor et al re-formats the information is not critical to the teachings to be gleaned for the combination of references since it is the fact that a Master Control Station is a source of satellite ephemeris and almanac data which is capable of being communicated to a base station for further use by mobile GPS receivers. Thus, the substitution of the teaching of Taylor et al for using a Master Control Station to provide ephemeris data to a base station for subsequent use by a remote receiver into King et al are clearly within the scope of the prior art. Additionally, the selection of the interval of time for which the data is "valid" is clearly encompassed by the combined prior art, and in particular by King et al. The applicants' arguments are therefore not deemed to be persuasive.

9. Claims 26-28 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over King et al in view of Taylor et al and Moore.

The rejection is previously set forth in a prior Office Action.

Applicants argue that Moore fails to provide the missing teaching of receiving ephemeris data from a satellite control station and transmitting a portion of the ephemeris data that is valid for at least four hours to a remote receiver. Applicants do not argue Moore for the reason that such was applied to the claims. Therefore, such argument is not persuasive since the

combination of King in view of Taylor et al is deemed to suggest to the skilled artisan the limitations of receiving ephemeris data from a satellite control station and transmitting a portion of the ephemeris data that is valid for at least four hours to a remote receiver.

Art Unit: 3662

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).


Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory C. Issing whose telephone number is (703)-306-4156. The examiner can normally be reached on Mon-Thurs 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (703)-306-4171. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.


Gregory C. Issing
Primary Examiner
Art Unit 3662

gci
1/5/04